

## CLAIMS

1. Measuring system for measuring at least one parameter that is indicative of the state of a tire of a vehicle, comprising on the one hand, on each wheel, a detector (12) having a parameter sensor (13) and an antenna (15) tuned to a defined frequency and on the other hand a central data processing unit (24) coupled by individual wire links (22) to fixed antennas, each of which is arranged near a wheel equipped with a detector, system in which each parameter sensor comprises a transponder associated with a capacitor for storing the power coming from the associated fixed antenna and in which at least one of the fixed and mobile antennas is a loop that is substantially centered over the axis of the wheel so that the link with the other antenna corresponding to the same wheel is substantially independent of the angular position of the wheel, and with the mobile antenna being remote from the wheel rim if the wheel rim is made of metal.

2. System as claimed in Claim 1, characterized in that the mobile antenna is formed by a loop or a coil that is carried by the interior surface of the tire or is integrated in the tire.

3. System as claimed in Claim 1, characterized in that the sensor and the antenna of the detector are fixed on an annular support for running flat (90) carried by the wheel rim.

4. System as claimed in Claim 1, 2 or 3 characterized in that the fixed antenna is formed by a loop or coil that is centered over the axis of the wheel and is carried by the part of the wheel suspension that is integral with the wheel.

5. System as claimed in Claim 1 or 2 characterized in that the antenna and the sensor of the detector are fixed to or embedded in the interior surface of the tire (76) or the interior zone of the tire is directly molded over the sensor/antenna assembly of the detector.

6. System as claimed in any one of Claims 1 to 5, characterized in that the sensor comprises a memory in which information identifying the tire, the wheel rim, and/or the annular support is stored during manufacture.

7. System as claimed in any one of the preceding claims, characterized in that each detector comprises an antenna in the form of a loop or a coil followed by a tuning circuit having a self-inductance (52) and a capacitor (54), a rectifier (56) and a circuit (58) with at least one power storage capacitor, as well as a status device (60), which receives the output signals of the pressure and/or temperature sensors (62) and supplies a modulating signal to an impedance modulation circuit (64) of the antenna.

8. System as claimed in Claim 1, characterized in that the parameter sensor and its antenna are fixed to or integrated in a wheel rim (68) made of a non-conductive or weakly conductive material.

9. System as claimed in Claim 1, characterized in that the wheel also carries lateral, vertical or longitudinal acceleration measuring means connected to the antenna.

10. System as claimed in any one of Claims 1 to 9, characterized in that the central processor is configured successively to poll several sensors carried by one and the same wheel.

11. Detector for a vehicle wheel intended for a measuring system to measure at least one parameter that is indicative of the state of the tire, comprising

- a parameter sensor (13) having a transponder associated with a rectifier for the received radio frequency power and with a power storage capacitor and

- an antenna (15) tuned to a defined radio frequency, formed by a loop or coil, which together with the sensor is carried by the interior surface of the tire, by a flat-running support, or by the wheel rim,

said sensor comprising a memory in which is stored information identifying the tire, the wheel rim, or the flat running support.

12. Vehicle tire, wheel rim, or flat running support comprising a detector as claimed in Claim 11.

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